



U.S. Department of the Interior  
Minerals Management Service  
Gulf of Mexico OCS Region

March 2002

*Surface Circulation and the Transport of the Loop Current into the  
Northeastern Gulf of Mexico*

OCS Study MMS 2001-102

The Minerals Management Service (MMS), Gulf of Mexico OCS Region, announces the availability of a new study report, *Surface Circulation and the Transport of the Loop Current into the Northeastern Gulf of Mexico*.

The main objective of this study was to combine remote sensing and field data to study the circulation of the Northeastern Gulf of Mexico (NEGOM). Upwelling events were seen in summer along the periphery of the NEGOM, specifically on the coasts of the Big Bend region and in the region off Pinellas and Manatee Counties (near the mouth of Tampa Bay). During the period of May-July 1998, unusual upwelling along the coasts of the Florida Panhandle in the northeastern Gulf of Mexico led to 3-6°C lower sea surface temperature (SST) than normal. Strong upwelling was observed near the shelf break in the NEGOM after Hurricanes Earl (September 2-4, 1998) and Georges (September 25-October 1, 1998). Combined satellite and *in situ* data from 1996 at the shelf break in the DeSoto Canyon region from January through July show a mean current from west to east, and in the west Florida Shelf region from north to south. An anticyclonic jet followed the curvature of the shelf break off the Florida Panhandle. In August, the flows reversed and the mean surface currents at the shelf break were from south to north-northwest off the west Florida Shelf, east to west in the DeSoto Canyon region, and offshore in the Mississippi Delta region. The flow reversal seen in 1996 occurred as a major eddy separated from the Loop Current. Combined data products indicate that there is a seasonal cycle in the flow over the west Florida shelf, with southward flow during the spring and a northward flow during late summer. While some very strong currents were observed in the northern and western part of the NEGOM, currents here in general were more erratic. The ocean color and *in situ* data collected during a series of nine cruises showed that freshwater from the Mississippi River spread eastward in the summers of 1998, 1999, and 2000. No significant eastward entrainment of Mississippi River water was observed in winter and spring. Satellite and *in situ* data for the 1976-1999 period revealed that Loop Current warm waters penetrated up to 27.5° N about 10 percent of the time (i.e., about 2 events every 3 years). Loop Current waters penetrate to 28° N about 5 percent of the time (i.e., 2 events every 5 years). No penetration to 29° N was detected.

You can obtain copies of the report from the Minerals Management Service, Gulf of Mexico OCS Region, at a charge of \$20.00 by referencing OCS Study MMS 2001-102. You will be able to obtain this report also from the National Technical Information Service in the near future. Here are the addresses. You may also inspect copies at selected Federal Depository Libraries.

Minerals Management Service  
Gulf of Mexico OCS Region  
Public Information Office (MS 5034)  
1201 Elmwood Park Boulevard  
New Orleans, Louisiana 70123-2394  
Telephone requests may be placed at  
(504) 736-2519 or 1-800-200-GULF, or  
FAX: (504) 736-2620

U.S. Department of Commerce  
National Technical Information Service  
5285 Port Royal Road  
Springfield, Virginia 22161  
(703) 487-4650 or FAX: (703) 321-8547  
Rush Orders: 1-800-336-4700

MMS is the federal agency in the U.S. Department of the Interior that manages the nation's oil, natural gas and other mineral resources on the outer continental shelf in federal offshore waters. The agency also collects, accounts for and disburses mineral revenues from federal and Indian leases. These revenues totaled nearly \$10 billion in 2001 and more than \$120 billion since the agency was created in 1982. Annually, nearly \$1 billion from those revenues go into the Land and Water Conservation Fund for the acquisition and development of state and federal park and recreation lands.

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MMS's Website Address: <http://www.mms.gov>

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